



Source: ESA ESRIN

Liaison Report GSDI Association

An update on selected activities
since WGISS-43

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Past Secretary-general, HUNAGI (1994-2015)

With Annex on WWEC2017
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- GSDI at the 10thISDE&Locate17 Conference
- GSDI at the Del Bianco City Smart Conference
- GSDI involvement in the UN 2030 Agenda
 - The GEO EO4SDGS Survey
 - GSDI involvement in country level SGDs action – the case of Hungary
 - Geospatial Information for SDGs
 - EO for SDGs
 - UN GGIM for SDGs
- WWEC2017 Helsinki Conference
- Acknowledgements - Liaison farewell

GSDI at the 10th ISDE & Locate17 Conference

a joint event of ISDE and Australia's geospatial community



Sydney, April, 2017

- On behalf GSDI, MoU of 'Digital Belt and Road' (DBAR) Alliance was signed by ExCom member A. Rajabifard
- He delivered a plenary presentation on UN GGIM's Academic Network
- Further GSDI presentation with co-authors P. Hogan of NASA and Prof M. Brovelli of Politechnico di Milano was given by GSDI's WGISS Liaison
- Follow-on action: visiting GSDI ExCom member Prof. and Director Abbas Rajabifard in his Centre of Spatial Data Infrastructures and Land Administration in the University of Melbourne



DBAR impacts
65 countries and
4.3 bn people



ISDE10/Locate17
Plenary Speakers

- Chair: Dr Stuart Minchin, Geoscience Australia
- Greg Scott, Inter-Regional Advisor UNGGIM
- Prof. Abbas Rajabifard, Chair
- Denise McKenzie, Vice Chair, Private Sector
- Dr Walter Scott, DigitalGlobe USA
- Dr Peter Woodgate, Australia and New Zealand
- Glenn Cockerton, Spatial Vision
- Prof. GUO Huadong, Institute of Remote Sensing, Chinese Academy of Sciences



STREAM CS01.8 Virtual Globes

TITLE How Open Source Virtual Globe is supporting the SDGs – The Case of NASA World Wind

PRESENTED BY Gabor Remeety-Fülöpp, Member of HUNAGI, ISDE, GSDI and NASA WWEC Scientific Committee



GSDI delegates
at ISDE10/Locate17

GSDI update in nutshell

Florence, March, 2017

Del Bianco CitySmart and the Geospatial Community

GABOR REMETÉY
MEMBER OF HUNGARIAN ITTI, MITI, MANT, GSDI, ISDE, NASA WWC SC

GSDI contribution in Florence

Del Bianco CitySmart serves the UN Agenda 2030 SDGs and Targets in the Urban Context

access for all to adequate, safe, affordable, housing and basic services	access to safe, affordable, accessible and sustainable transport systems	participatory, integrated and sustainable human settlement planning	protecting and restoring the world's cities and cultural heritage	science, technology, innovation and evidence-based decision making
climate action	access to safe, inclusive and accessible, green and public spaces	strengthening national and regional development planning	mitigation and adaptation to climate change, resilience to disasters	responsible consumption and production

Del Bianco CitySmart in nutshell

Uniting the World on urban management of global challenges

- ▶ An open, freely available, integrated web-based framework for urban infrastructure management and visualization
- ▶ NASA Web World Wind co-developed with ESA
- ▶ Frontend to backend all open source components
- ▶ CitySmart data and services so far:
 - ▶ Web Map Services
 - ▶ Open Street Maps
 - ▶ 3D buildings + topography
- ▶ Collaboration via open source public repositories



Courtesy of Miguel Del Castillo Hoffman and Gabriele Mitaq Lopes



NASA World Wind Manager Patrick Hogan at the 1st FOSS4G Europe Conference

GSDI involvement in the UN 2030 Agenda



as of August, 2017

- GSDI response for the recent survey of GEO EO4SDGs Working Group directed by Argyro Kavvada of Booz-Allen&Hamilton at NASA HQ:

Contributing Organization	Member/ PO affiliation	Organization category	Type of contribution	Contribution details	Source of funding	Value (actual or estimated)
Global Spatial Data Infrastructure Association (GSDI)	PO – https://www.earthobservations.org/pos.php	International Organisation	In-kind labour And travel costs	Below the table	GSDI reserve funds for Strategic Projects and volunteers' in-kind contributions	\$ 5000

- Contribution details: Awareness raising, Engaging stakeholders, Capacity building inc. webinars and workshops, Methodology development, UN-GGIM: multichannel contribution in the UN 2030 Agenda context on country, regional and global level, Sharing best practices (SDI4SDGs, Marine SDI Best Practice, INSPIRE, Global NSDI Index Project, open data, open source), Contribute to CEOS WGISS and GEO plenaries, Support SDGs accomplishment by SDI (i.e.: spatial data, services, applications toward spatial (location) knowledge infrastructure, Small Grants Programme, Multiple Agency Cooperation, Networking

GSDI involvement in the UN 2030 Agenda



GSDI in country level awareness raising- the case of Hungary

- Individual GSDI and **MFTTT** members' collaboration. A series of presentation in the subject "UN 2030 Agenda – the challenges for the geospatial community" to engage stakeholders. Speakers: Prof. Szabolcs Mihály and Tamás Palya (past and present INSPIRE delegate of Hungary). Co-author: G. Remetey, member of GSDI Association

INSIDERS' VIEW BY GÁBOR REMETEY-FÜLÖPP, HUNGARIAN MEMBER OF GSDI

The Challenge of Raising Stakeholder Awareness at All Levels

The UN General Assembly adopted the Sustainable Development Goals (SDGs) last year as part of the 2030 Agenda. There are 17 SDGs and 169 targets. Experience from the previous UN Millennium Development Goals programmes called special emphasis on data, monitoring and reporting. The SDG indicator framework developed by the UN Inter-Agency Group for Sustainable Development Goals (IGDG) showed the focus for the yearly SDG progress report of the UN Secretary-General, as mandated by the High-Level Political Forum (HLPF) on Sustainable Development. The recent second SDG progress report emphasises the importance of data and monitoring statistics.

This poses a challenge for both the stakeholders and a national system that needs to expand from local to global, while ensuring that these SDG indicators being collected and aggregated from different territorial levels. This is where national (and, consequently, the sector) data infrastructure (SDI) comes into play. The motto of the Global Spatial Data Infrastructure (GSDI) Association is "Advancing a location enabled world". GSDI, via the UN Committee of Experts on Global Geospatial Information Management (UN-CEGIS), provides a contribution in the context of the UN 2030 Agenda including at national and regional levels, as well as thematic areas such as the UN-GGIM Academic Network. To foster awareness-raising, stakeholder engagement and capacity building, a variety of GSDI actions are in place in the form of workshops/seminars, sharing of best practices, open decision sources, the Smart Geospatial Program and others related to SDG4SDI, Marine SDI, INSPIRE and the Global NSDI Index Project.

The joint use of Earth observation (EO) and geospatial infrastructures creates synergy and supports SDG awareness raising efforts, national policies and the UN 2030 Agenda, notably. These are demonstrated by GFCI, GSDI, GSDI, WGI-SDG and GSDI-SDG reports in the recently published special issue of the open-access journal Geospatial Information Science guest edited by Prof. John van Genderen.

Awareness-raising in Hungary
 Geospatial Information Society of Surveying, Mapping and Remote Sensing (MFTTT), namely the former and recent national INSPIRE delegate (Prof Szabolcs Mihály and Tamás Palya) and the Hungarian member of GSDI, launched an awareness-raising campaign this year to engage stakeholders. They did this by using a series of presentations emphasising both the challenge and the opportunities to the surveying and geomatics communities addressing support for the SDGs at the national level. The target audiences of the first five thematic and cross-cutting conferences include service and provider providers as well as decision-makers from government, industry and academia. The awareness-raising events were as follows (with number of participants shown in brackets):

- Day of the European Surveyors and Geomatics, Budapest (180)
- GIS Open 2017, Székesfehérvár (150)
- XV Meeting of Surveyors of the Hungarian Technical Scientific Society of Transylvania (EMT) Băile Tuşnad, Romania (140)
- 31. Roving Conference of the Hungarian Society of Surveying, Mapping and Remote Sensing, Szekszárd, July 6-8. Participants: 170
- Mini-conference devoted to the 70th Anniversary of Prof. Béla Márkus, Székesfehérvár (45)

Recent actions include promoting the approach 2017 Worldwide Europa Challenge in Helsinki – an annual competition for systems and SMEs to create innovative solutions serving sustainability and urban engagement and to facilitate collaborative assessment of these solutions on a global scale. Another promising effort was established with the Sustainable Development and Resources Research Centre at the Public Geomatics University in Budapest. To effectively realize the SDGs, we need an interdisciplinary vision, strong stakeholder engagement, multi-agency partnerships, innovative geospatial data infrastructures and a visionary urban sustainability building.

This MFTTT-GSDI activity has been referred in the Insiders' view column of the GIM International, September 2017

- **Day of the European Surveyors and Geoinformatics** MFTTT / Ministry of Agriculture in Budapest, March 22 Participants: 180
 - **GIS Open 2017** Óbuda University Alba Regia Technical Faculty, Institute of Geoinformatics. Székesfehérvár. April 11-13 Participants: over 150
 - **8th Geoinformatics Conference and Exhibition** Debrecen, May 25-26 Participants: 120
 - **XVIII th Meeting of Surveyors of the Hungarian Technical Scientific Society of Transylvania (EMT)** Băile Tuşnad, May 18-21 Participants: 140
 - **31. Roving Conference of the Hungarian Society of Surveying, Mapping and Remote Sensing.** Szekszárd, July 6-8. Participants: 170
 - **Mini-conference devoted to the 70th Anniversary of Prof. Béla Márkus.** Óbuda University Alba Regia Technical Faculty, Székesfehérvár, July 11 Participants: 45
- Ahead:**
- **Earth Observation for SDGs at Fény-Tér-Kép Conference, Gárdony, October**

GSDI update in nutshell

GSDI involvement in the UN 2030 Agenda

Geospatial Information for SDGs



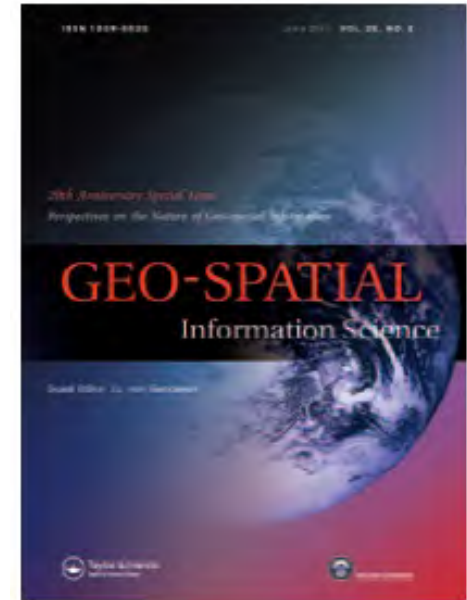
GEO-SPATIAL Information Science - special issue: Role of EO/Geospatial data, services and applications in the SDGs

SD and GI: a strategic framework integrating global policy agenda into national geospatial capabilities

Greg Scott of GGIM at the UN Statistical Division and Prof. Abbas Rajabifard, ExCom member of **GSDI**, Chair of the Academic Network of GGIM made an in-depth description how the spatial data infrastructure and related technologies could support the monitoring and reporting of SDG indicators and targets in close interagency collaboration.



Greg Scott (top) and Prof. Abbas Rajabifard at the ISDE10/Locate17



Cover page of the GISIS guest edited by Prof. John van Genderen)

GSDI involvement in the UN 2030 Agenda

EO for SDGs



GSDI is observing member of the EO4SDGS working Group and participates its telecons frequently

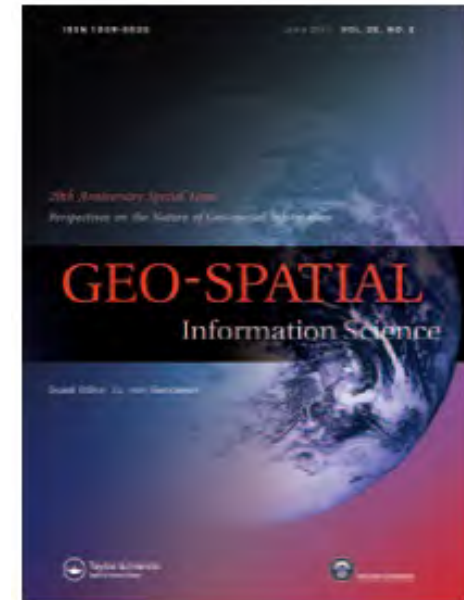
Earth observation in service of the 2030 Agenda for Sustainable Development

In a recent article published in the *Geo-Spatial Information Science* (GSIS) there is a description how the EO data, infrastructure and related services, applications are capable to contribute to the accomplishment of the SDGs from local to global.

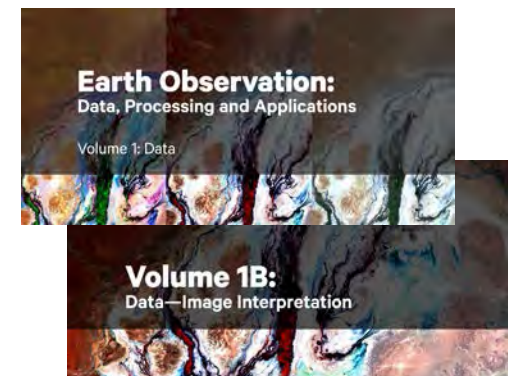
The paper was written by Katherina Anderson, Barbara Ryan, William Sonntag of GEO Sec as well as Argyro Kavvada and Lawrence Friedl of the EO4SDGS team.

These resources are widely distributed
In frame of the awareness raising actions

GSIS



Awareness raising on CRCSI publication:



GSDI update in nutshell

GSDI involvement in the UN 2030 Agenda

UN GGIM for SDGs



July, August, 2017



- Dave Lovell, president of GSDI Association, Chair of the UN GGIM Geospatial Societies took part on the Workplan/Way Forward Forum organised by the UN GGIM Academic Network in the UN HQ in NYC.
- GIM International interviewed GSDI President Dave Lovell under the title “Maximising the Benefit of Geospatial Information”
- Former GSDI President Abbas Rajabifard chair of the strategic knowledge, research and training arm of UN GGIM moderated the Forum’s session devoted to SDGs’ major drivers, opportunities and challenges
- In the Enablement and Requirements session Prof. Harlan Onsrud, former Executive Director of GSDI highlighted the legal and policy requirements

WVEC2017 Helsinki Conference

The 5th NASA Europa Challenge

Espoo, August 28-31, 2017

- Hosted by the Digital Forum of Finland at the Aalto University and Nokia.
- 12 of 21 teams were present
- 1st price: [World Weather](#) and [AgroSphere](#)
- Best support teams as rated by all other teams were also awarded
- OSGeo (Suchith Anand) and GSDI (G.Remetey) submitted the special Award offered by GODAN for two winners:
 - [AgroSphere](#) climate change impact analysis and [Aware](#) Algorithmic Wildfire Analysis and pREdiction
- The participants visited nanosat labs (SAR and hyperspectral constellation) as start-up companies and technology-business-design based innovation clubs. After the mentor- guided workshop a high level conference forum provided frame for the award ceremony.

Open source, virtual globe based application developments



Acknowledgements

- Special thanks to Viktor Pusztai who invited HUNAGI and me to co-organise the WGISS-23 and CVWG Meeting in Budapest and Prof. Harlan Onsrud, Ivan Petiteville and Ken McDonalds for their GSDI-CEOS WGISS liaison initiative, which I tried to serve doing my best in the past 12 years.
- Since Spring 2006 I participated 16 WGISS Meeting and contributed 4 times remotely. I reported for HUNAGI and GSDI also using a frequently visited [blog](#).
- My appreciation to Co-Chairs of WGISS, the Presidents, former Executive Director and present Secretary General of GSDI Association for their support and encouragements to keep the GSDI-CEOS WGISS link live and useful. This community is really close to my hearth and I learned a lot.



Image sources: NASA , ESA ESRIN and Internet

Thank you for your cooperation !

Thank you for your attention!

WorldWind Europa Challenge 2017

Finalist Projects

Aims

- Academic event
- 5th year of the Challenge
- Open Source Web Applications
- Particular community needs for each team
- Urban livability
- Sharing solutions



City Smart World Wise (6th place)

- Urban infrastructure visualization for an entire community (city of Kodiak, Alaska)
- Renewable energy, water purification and treatment, agricultural development,
- Community resource mapping (health, amenities, education, transportation, emergencies, etc.)

Layer Menu

Wind Energy

-KHS Wind Turbine

-KEA Wind Turbine

Energy Distribution

-Kodiak Overhead Cables and Poles

-Kodiak Terror Lake Powerhouse

Transmission Lines

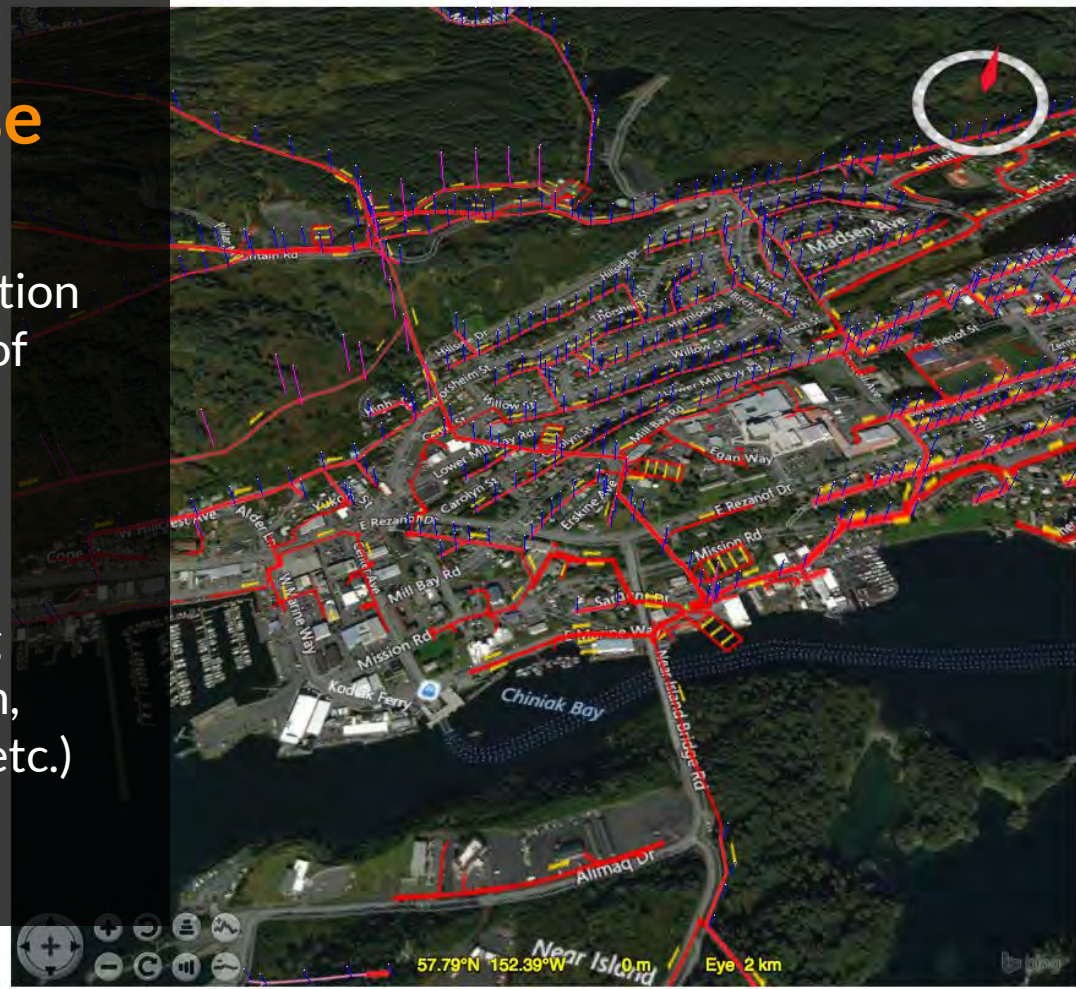
-Kodiak Large Transformers

-Kodiak Small Transformers

-Kodiak Substations

-Kodiak Fuses

-Kodiak Poles With Guy Cable



Add OSM using tags.

Add OSM buildings.



Color

Select the color:

rgba(187,0,88,1)

Extrude
Set the extrusion height in meters for all the buildings.
altitude in meters

Use OSM height
 Use a property that exists in the data

Enter a property name

Heatmap

Enter the minimum

0, 15, 30, 40, 60

How?

Click twice on the globe to set the bounding box

Upload a GeoJSON file

Browse...

Go!

3D OpenStreetMap (5th place)

- Provides Web WorldWind with capabilities to seamlessly consume any type of OSM data
- 3D buildings, points of interest, lines, polygons.
- Enhances 3D rendering performance compared to Web WorldWind primitives



Smart Pollen Monitoring (4th place)

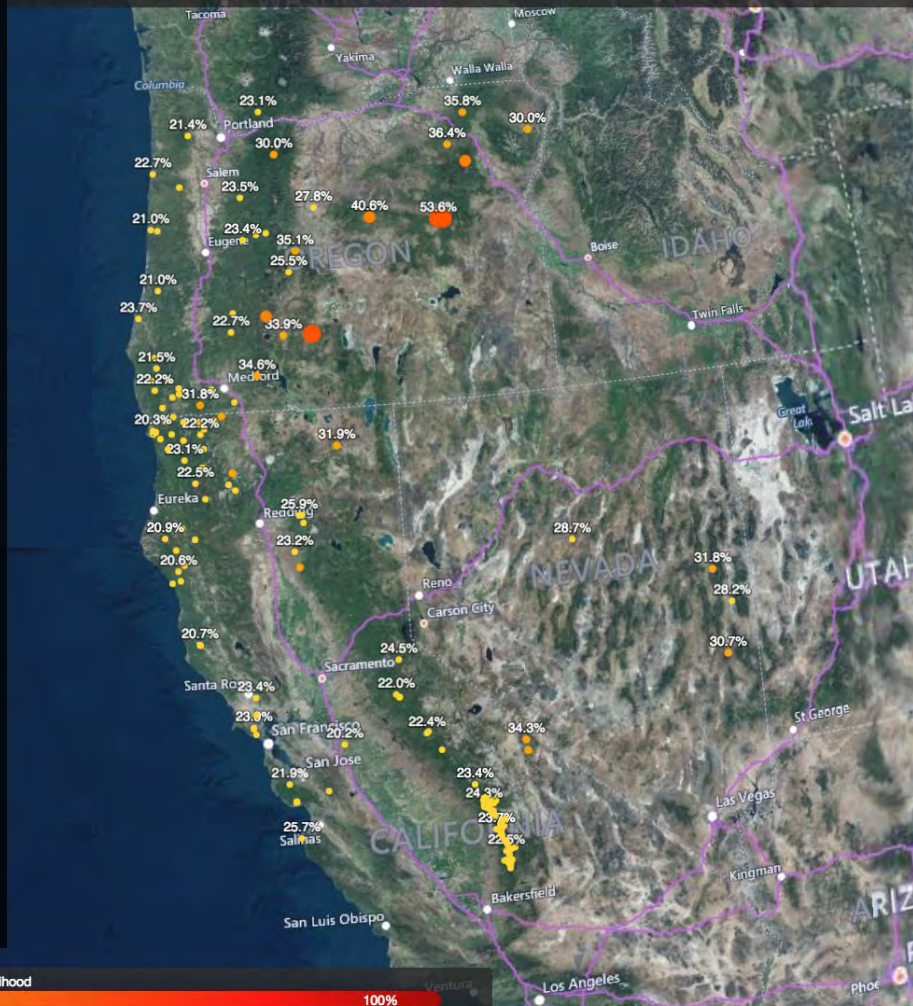
- Tool for people with allergies
- Pollen dispersion analysis
- Based on the time of the year, wind direction, and tree species
- Statistical information visualization tools



AWARE (3rd place)

(Algorithmic Wildfire Analysis and pREdiction)

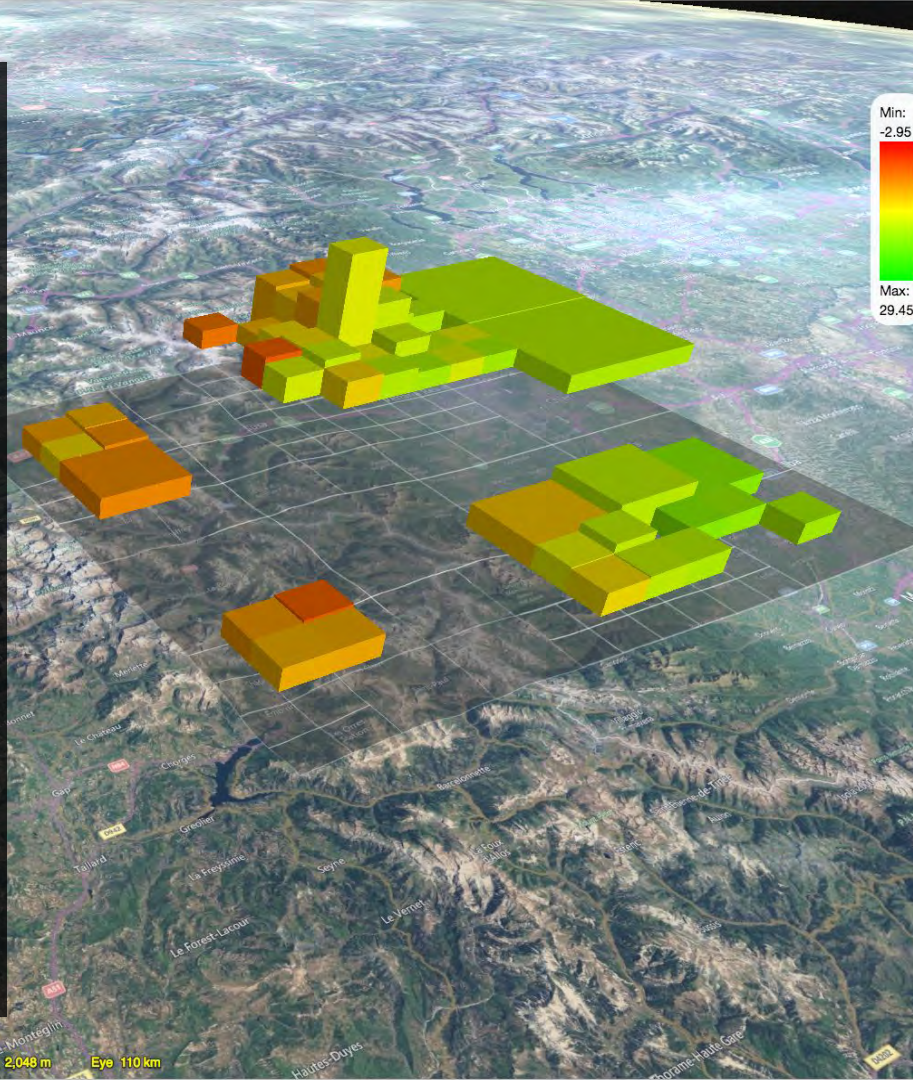
- Wildfire forecasting on available sensor stations
- Wildfire history probability analysis
- Machine learning-based forecasting



MuViAS (2nd place)

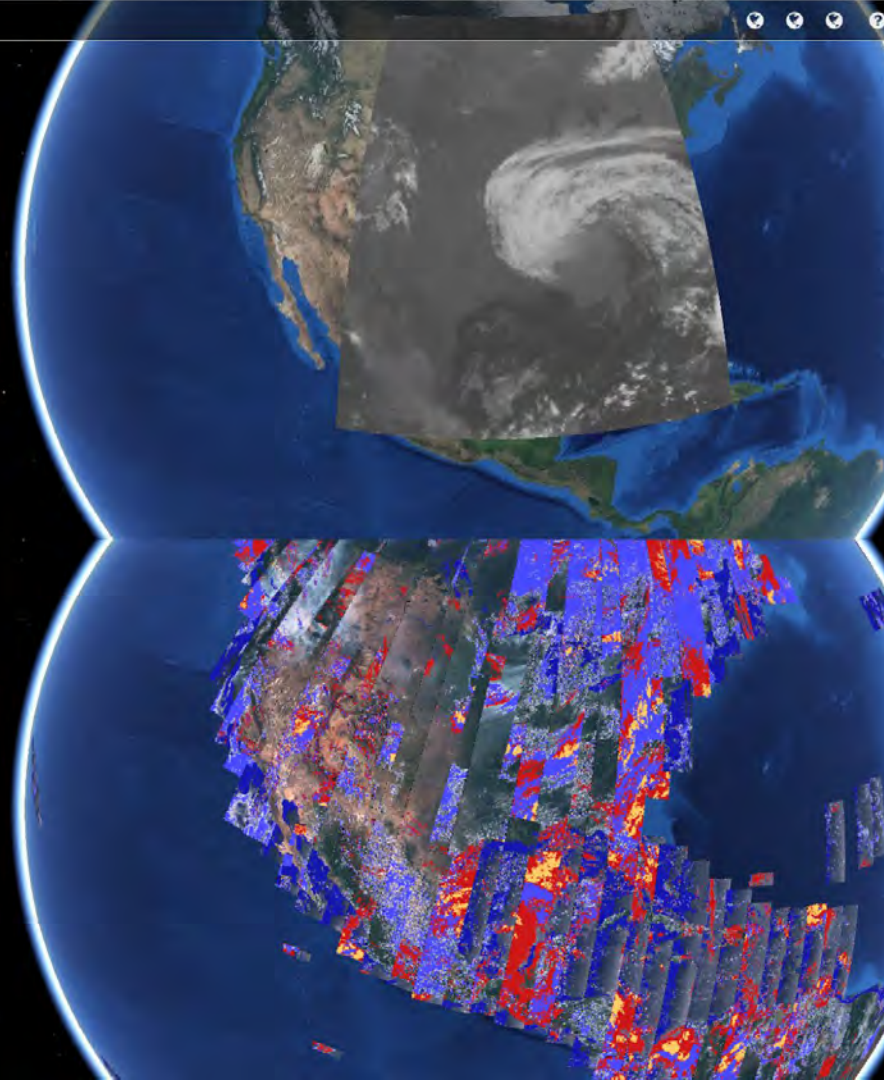
(Multidimensional Visualization and Analysis Suite)

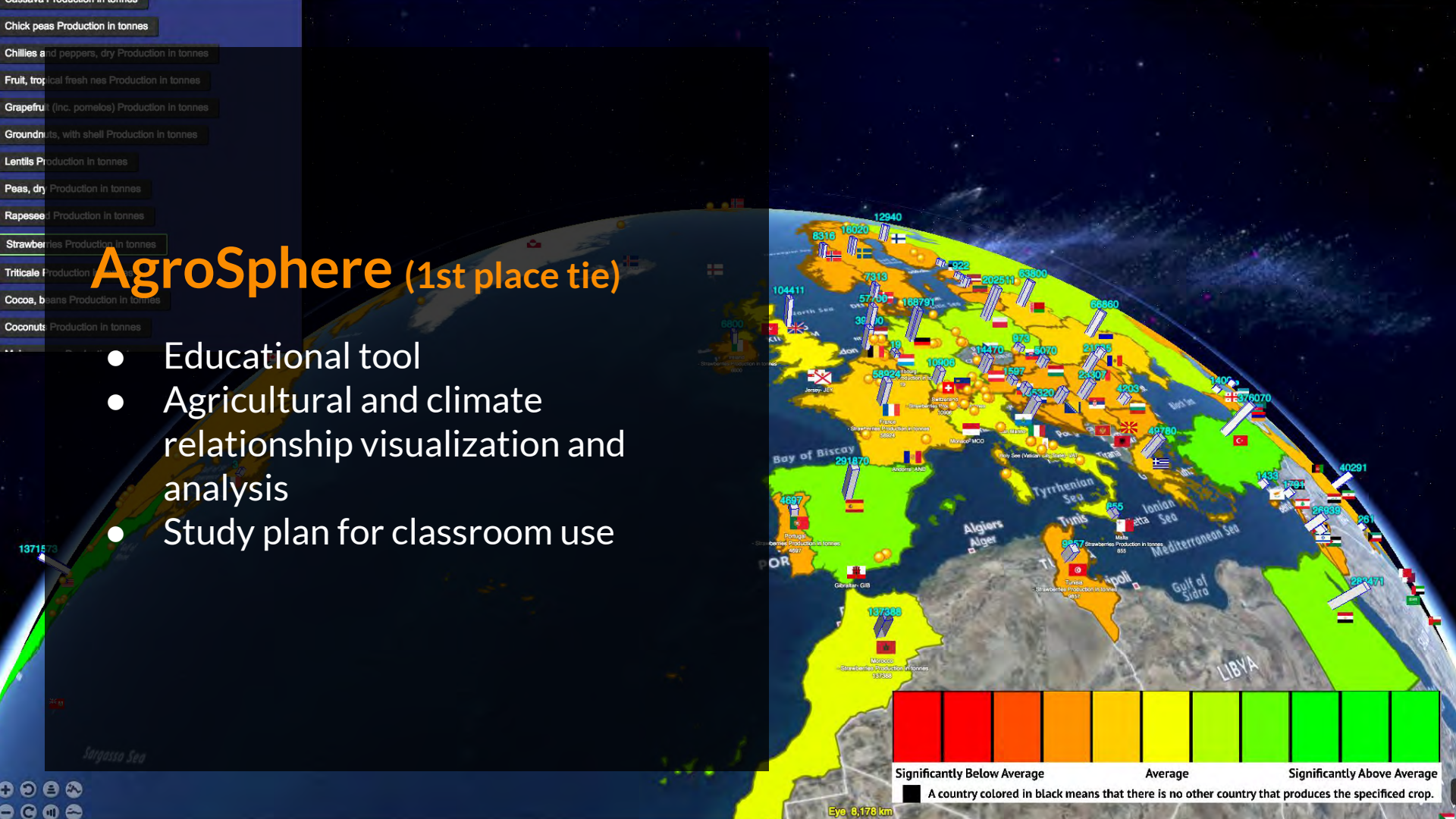
- Takes advantage of 3D capabilities of Web WorldWind to visualize any type of multidimensional data
- Provides developers with a suite of dynamic voxel-based data visualization tools for their apps
- Condenses lots of information in a single screen-space



WorldWeather (1st place tie)

- Climatological and weather data visualization and comparison
- Combines satellite imagery from widely different sources (NASA, ESA, DLR, etc.)
- Provides tools for browsing unrelated satellite imagery datasets simultaneously (legends, timeseries, overlapping, etc.)





Chick peas Production in tonnes

Chillies and peppers, dry Production in tonnes

Fruit, tropical fresh nes Production in tonnes

Grapesfru (inc. pomelos) Production in tonnes

Groundnuts, with shell Production in tonnes

Lentils Production in tonnes

Peas, dry Production in tonnes

Rapeseed Production in tonnes

Strawberries Production in tonnes

Triticale Production in tonnes

Cocoa, beans Production in tonnes

Coconuts Production in tonnes

AgroSphere (1st place tie)

- Educational tool
- Agricultural and climate relationship visualization and analysis
- Study plan for classroom use

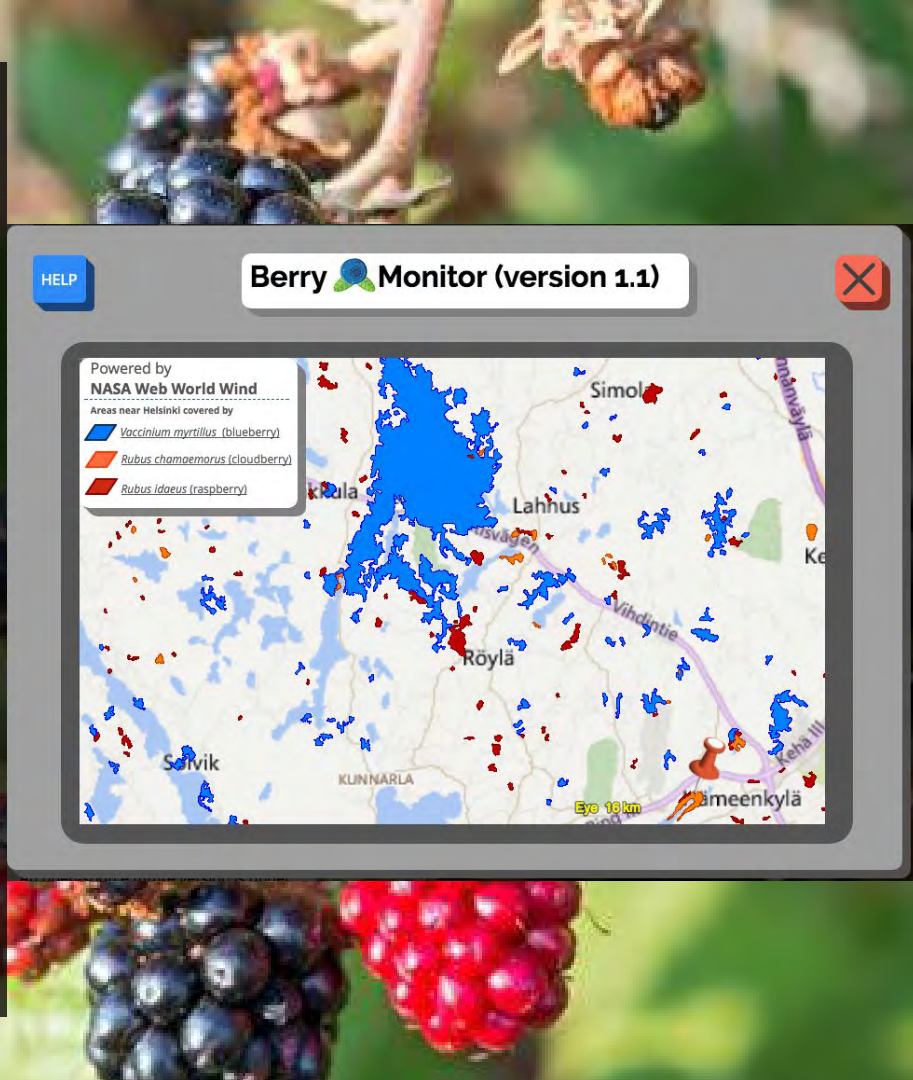
Significantly Below Average Average Significantly Above Average

■ A country colored in black means that there is no other country that produces the specified crop.

Eye 8,178 km

Berry Monitor (Miguel's honorific mention)

- GIS wild berry monitoring



WorldWind
EUROPA CHALLENGE
HELSINKI 2017



Resources

WorldWind Europa Challenge 2017 Website:

<http://eurochallenge.como.polimi.it/projects2017>

City Smart World Wise:

<http://eval.cs.aworldbridgelabs.com/>

3D OpenStreetMap:

<http://osm.eoapps.eu/>

Smart Pollen Monitoring:

<http://smartpollenmonitor.org/>

AWARE:

<http://wildfireaware.co.uk/>

Berry Monitor:

<https://www.berrymonitor.com/>

WorldWeather:

<https://github.com/NASAWorldWindResearch/WorldWeather/wiki>

AgroSphere:

<https://github.com/NASAWorldWindResearch/AgroSphere/wiki>

MuViAS:

<http://muvias.eoapps.eu/>